

## Ocean gales and storms, October, 1927—Continued

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Highest force of wind and direction	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH PACIFIC OCEAN—Continued													
Steel Mariner, Am. S. S.	Kobe.....	Port Townsend.....	47 50 N.	172 15 W.	25.....	Noon, 30.....	31.....	Inches 29.04	ENE..	NNE.....	WNW..	N., 9.....	NE.-N.
Columbia Maru, Jap. S. S.	Yokohama.....	Seattle.....	42 29 N.	158 21 E.	27.....	6a., 29.....	Nov. 1.....	29.48	NW.....	NNE.....	NNW..	NNE., 8.....	1 pt.
Mayebashi Maru, Jap. S. S.	do.....	San Francisco.....	46 02 N.	146 53 W.	29.....	5p., 31.....	1.....	29.45	E.....	SW., 7.....	W.....	SE., 8.....	SW.-WSW.
SOUTH PACIFIC OCEAN													
Sonoma, Am. S. S.	San Francisco.....	Sydney.....	30 29 S.	158 32 E.	5.....	8a., 5.....	Oct. 5.....	29.70	SSW..	SSW., 6.....	S.....	SSW., 11.....	Steady.
San Nazario, Br. S. S.	Buenos Aires.....	San Pedro.....	52 28 S.	70 10 W.	10.....	8a., 11.....	12.....	29.48	NW.....	WNW., 9.....	W.....	WNW., 10.....	WNW.-SW.
SOUTH ATLANTIC OCEAN													
San Nazario, Br. S. S.	Buenos Aires.....	San Pedro.....	47 00 S.	63 55 W.	7.....	4a., 8.....	8.....	29.39	N.....	WNW.....	WNW..	N., 8.....	

## NORTH PACIFIC OCEAN

By WILLIS E. HURD

Strong wintry conditions visited the upper latitudes of the North Pacific Ocean in October, 1927. Snow and hail squalls occurred over the lower waters of the Gulf of Alaska on the 14th and 15th, and exceptionally stormy weather prevailed north of the 40th parallel during a full third of the month. A glance at the "Gale and storm report" will show that heavy weather in the Temperate Zone began in earnest about the 8th, rose to a peak on the 19th to 21st, then declined somewhat until the 26th, after which, except for an isolated tropical gale, the ocean experienced comparative quiet. From the 14th to the 21st, and on the 26th, full storm to hurricane winds were encountered over great areas between the 135th meridian of west longitude and the 160th meridian east. On the 20th and 21st, the days of most widespread storm violence, the gale-swept region stretched south of the Aleutian Islands for a latitudinal width of more than 500 miles, between longitudes 155° W. and 170° E. In addition, on the 3d and 29th, hurricane velocities from typhoons were elsewhere experienced. Thus, in all, winds in excess of force 10 are known to have occurred on 11 days this month on the open waters of the Pacific. Gales of force 8 to 10 were further experienced by vessels somewhere in the ocean on most other dates, except the 4th to the 7th, which was a period of quiet.

Barometric pressures on the average were not abnormally low for the month except in the Gulf of Alaska, where the principal concentration of the Aleutian cyclone lay, with minor fluctuations, from the 6th until the 28th. The mean pressure at Kodiak, the center of the disturbance, was 29.39 inches, which is 0.20 inch below the normal. The lowest daily reading here was 28.14 inches, on the 14th, on which date and the one following occurred the strongest gales in the gulf. On the 16th and 17th a center secondary to the main Low formed near 40° to 45° N., 135° to 140° W., and on both dates this position was near the scene of wind forces rising to 11 and 12. On the 18th to 21st pressures, in addition to being low over the Alaskan Gulf, were very low far to the westward, where an intense cyclone had developed and was traveling eastward toward the primary storm center. It was on the 19th, in the midst of the violent gales of this storm—then definitely joining the Low to the east-

ward—that the American Steamer *President Jefferson*, in 50° N., 176° 25' E., reported a pressure reading of 28.07 inches, which was the lowest for the month in connection with an extratropical storm.

Cyclonic offshots from the Low in the gulf entered the American Continent on the 6th, 8th, 12th, 16th, 18th, 20th, 23d, and 28th.

Owing to the considerable cyclonic activity in middle and higher latitudes, the North Pacific HIGH was well developed only during the first few days and a part of the last decade of the month, being pushed to the south-eastward and partly disintegrated during much of the intervening time. From the 24th to the 27th it was pushed back from the California coast by an intruding offshoot of the northern cyclone which had forced its way southward. The offshoot, however, became disconnected from the parent Low, although it developed sufficiently to cause gales of maximum force 10 along the eastern half of the San Francisco-Honolulu route on the 25th and 26th.

Pressure data for several island and coast stations in west longitudes are given in the following table:

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level at indicated hours, North Pacific Ocean, October, 1927

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Dutch Harbor <sup>1 2</sup> .....	29.70	+0.01	30.42	1st.....	28.76	20th.
St. Paul <sup>1</sup> .....	29.71	+0.05	30.18	26th.....	28.94	7th.
Kodiak <sup>1 3</sup> .....	29.39	-0.20	30.36	3d.....	28.14	14th.
Midway <sup>1 2</sup> .....	29.95	-0.10	30.22	14th <sup>4</sup> .....	29.74	29th.
Honolulu <sup>1</sup> .....	30.03	+0.03	30.15	28th.....	29.88	1st.
Juneau <sup>1</sup> .....	29.69	-0.18	30.24	2d.....	28.90	15th.
Tatoosh Island <sup>1 4</sup> .....	29.97	-0.06	30.35	7th.....	29.48	16th.
San Francisco <sup>1 4</sup> .....	29.97	-0.03	30.15	29th.....	29.72	31st.
San Diego <sup>1 4</sup> .....	29.93	0.00	30.10	29th.....	29.70	31st.

<sup>1</sup> For 30 days.<sup>2</sup> P. m. observations only.<sup>3</sup> A. m. and p. m. observations.<sup>4</sup> Corrected to 24-hour mean.<sup>5</sup> On other dates.

Several typhoons occurred in the Far East during October. These are discussed in the immediately following article by Rev. José Coronas, of the Philippine Weather Bureau, and it is necessary to supplement his report by only a few additional facts. The "first Pacific typhoon," noted as moving E. by N. on October 1,

seems to have attained great violence on the 2d and 3d. The Japanese steamer *Shinyo Maru* encountered a southwest wind, force 12, lowest pressure 29.26 inches, in connection with this storm on the early morning of the 3d, in 33° N., 151° E., and reported receiving a typhoon warning which had been issued at 6 p. m. of the 2d by the Tokyo Observatory to the effect that the storm center was then located at 33° N., 154° E., lowest pressure 27.95 inches.

Father Coronas notes the "third Pacific typhoon" as being north of the Bonins (Ogasawara) at noon of the 28th. Further information given by the American steamer *President Grant* shows that the storm continued to the eastward and on the 29th was blowing a northeast hurricane in 30° N., 150° 42' E., lowest observed pressure, 29.13 inches.

One depression is noted on the Mexican weather maps as appearing off the Mexican coast south of Acapulco on the 19th and 20th. The wind circulation near 15° N., 100° to 105° W., was cyclonic, and the seas were heavy and confused, but no gales were reported there by our observers. Strong northeast gales of the norther type, however, occurred on the 18th in the Gulf of Tehuantepec, as well as northeast winds of force 7 on the 19th.

At Honolulu trade winds prevailed except on the 19th, when there was a mild kona. The prevailing direction here was from the east, and the maximum velocity, 28 miles from the east, on the 24th.

Fog decreased somewhat in northern waters since September, but was reported to have been observed on from 1 to 3 days in the several 5-degree squares between the central Aleutians and the Kuril Islands. It occurred on about 15 per cent of the days over the area east of 150° W., between the 45th and 50th parallels. Some 30 to 40 per cent of fog formed off the central California coast, and 30 per cent southward to the 30th parallel. Less than 20 per cent was reported from Washington and Oregon coast waters.

## TYPHOONS AND DEPRESSIONS

### FIVE TYPHOONS OVER THE FAR EAST IN OCTOBER, 1927

By Rev. José CORONAS, S. J.

[Weather Bureau, Manila, P. I.]

There have been two well-developed typhoons over the Philippines, and three other distant typhoons over the Pacific during this month of October.

*Typhoon of the Visayas, October 5.*—This typhoon was shown for the first time in our weather maps on October 1 to the southwest of Guam near 142° longitude E., and 11° latitude N. It moved almost due west, with a very light inclination to the north, until it reached the eastern coast of Samar close to Borongan at 11 p. m. of the 4th, the barometric reading at Borongan being then 744.84 mm. (29.32 inches). The direction of the typhoon from Samar to the north of Capiz was practically west.

The approximate position of the center at 6 a. m. of the 2d to 5th was as follows:

October 2, 6 a. m., 140° 10' longitude E., 10° 45' latitude N.  
 October 3, 6 a. m., 135° 00' longitude E., 11° 00' latitude N.  
 October 4, 6 a. m., 129° 30' longitude E., 11° 20' latitude N.  
 October 5, 6 a. m., 123° 30' longitude E., 11° 55' latitude N.

From the north of Capiz there was an inclination of the track to WNW., and the center passed near to the north of Tourane, Indo-China, in the afternoon of October 7.

Considerable damage was done by this storm in the Provinces of Samar, Masbate, Capiz, Iloilo, and Romblon. Some small boats were wrecked to the north of Capiz with a good number of victims.

*Typhoon of southern Luzon, October 9.*—The first part of the track of this typhoon is at present rather indefinite owing to lack of observation from Yap, Western Carolines. It would seem that it was formed on October 4 to 6 to the south of Guam near 145° longitude E. and 9° latitude N. It probably moved WNW., on the 6th, 7th, and morning of the 8th. In the afternoon it took a decidedly westerly direction and touched the northernmost coast of Camarines Norte in the morning of the 9th. At 2 p. m. the center was situated over the coast of Luzon practically to the east of Manila, very near Infanta, and passed close to the south of Manila at about 4 p. m. of the same day. An inclination of the track to WNW. was noticed after 6 a. m. of the 10th in the China Sea. The center reached Indo-China at about 4 p. m. of the 11th.

Some damage was done also by this typhoon in the Provinces of Camarines Norte, Laguna, and Rizal.

The approximate position of the typhoon at 6 a. m. of the 8th to 11th was as follows:

October 8, 6 a. m., 132° 40' longitude E., 13° 00' latitude N.  
 October 9, 6 a. m., 122° 50' longitude E., 14° 25' latitude N.  
 October 10, 6 a. m., 117° 15' longitude E., 14° 35' latitude N.  
 October 11, 6 a. m., 110° 50' longitude E., 16° 40' latitude N.

*Three other distant typhoons over the Pacific.*—The first of these typhoons appeared to the west of the Bonins in the early morning of October 1, and at noon the center was passing close to the north of said islands with a barometric reading 742.5 mm. (29.23 inches). The typhoon was moving E. by N.

The second Pacific typhoon was shown by our weather maps of the 13th to the east of Guam near 150° longitude E. and 13° latitude N. It moved NNW. on the 13th, and NW. on the 14th and 15th. In the afternoon of the 16th it recurved northeastward near 143° longitude E. and 21° latitude N.

The third Pacific typhoon was probably formed to the southeast of Guam on October 19. It moved WNW. until the 24th, when it inclined decidedly to the north near 130° longitude E. and 14° latitude N. It continued moving practically to the north until noon of the 27th, when it recurved to ENE. near 130° longitude E. and 25° latitude N. The center passed not very far to the north of the Bonins at noon of the 28th.